



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,417	02/26/2004	Valter A. G. Ronnholm	944-003.206	5259

4955 7590 10/13/2006

WARE FRESSOLA VAN DER SLUYS &
ADOLPHSON, LLP
BRADFORD GREEN, BUILDING 5
755 MAIN STREET, P O BOX 224
MONROE, CT 06468

EXAMINER

TOTH, KAREN E

ART UNIT PAPER NUMBER

3735

DATE MAILED: 10/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/789,417	Applicant(s) RONNHOLM, VALTER A. G.	
	Examiner Karen E. Toth	Art Unit 3735	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) 20-34 and 56-62 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 9-11, 13-19, 35-41, 43, 46, 47 and 49-55 is/are rejected.
- 7) ☒ Claim(s) 6, 8, 12-13, 37, 42, 44, 45, 48-49, and 54 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/10/04, 5/28/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Claims 20-34 and 56-62 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 24 July 2006.

2. Applicant's election with traverse of claims 1-19 and 36-55 in the reply filed on 24 July 2006 is acknowledged. The traversal is on the ground(s) that invention III is not a subcombination with separate utility. This is not found persuasive because invention III may still be used with a device that is not usable for communication by the patient, such as one that automatically communicates with a server with no user input.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

3. Claims 6 and 42 are objected to because of the following informalities:

Claim 6 does not clearly provide a structure; a step seems to be missing. It is suggested that the claim be re-worded to clearly state that the terminal handles an incoming call after interpreting the sleeping signal to determine the user's sleep state; if the user is in a deep sleep, handling the call in such a manner as to prevent the user from being awakened; if the user is not in a deep sleep, handling the call in some different manner.

Claim 42 does not make clear the intended method. It is suggested that the claim be amended to clearly state that the handling of an incoming call is dependent upon the user's sleep state as determined by the sleep characteristic signal; if the user is in a deep sleep, the call is handled in such a manner as to prevent the user from being awakened; if the user is not in a deep sleep, handling the call in some different manner.

For examination purposes, the claims will be treated as such.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 1-2, 4-5, 9, 15-17, 19, 35-36, 39, 41, 46, and 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lidow'806 (US Patent 4228806) in view of Geva'098 (US Patent Application Publication 2004/0073098).

Regarding claim 1, Lidow'806 discloses a system for determining when to awaken a user comprising a receiver for receiving a signal descriptive of at least one sleep characteristic of the user (element 60); and a signal processing module for processing the sleep descriptor signal (element 60) that is arranged to provide, in response to the signal, a stimulation signal (element 61; column 2, lines 6-10 and 26-29). Lidow'806 does not disclose the system being usable for communication by the patient when awake.

Geva'098 teaches a mobile system that may be used to monitor a patient's sleep stages (paragraph [0152]) that may be incorporated in a device that can be used for communication when not monitoring (paragraphs [0293]-[0294]), in order to increase the mobility of the system and increase its functionality by providing additional potential usage of the device. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the system of Lidow'806 and incorporated it in a mobile device that may be used for communication by the user, as taught by Geva'098, in order to increase the mobility of the system and increase the functionality of the device by providing additional potential uses.

Regarding claim 2, Lidow'806 further discloses that the stimulation signal may be an audible signal (column 4, lines 36-42).

Regarding claims 4 and 5, Lidow'806 further discloses that the signal processing module is arranged to provide the stimulation signal at least partly on the basis of at least one criterion (a time interval) adjustable by the user (column 3, lines 11-16; column 4, lines 36-56).

Regarding claim 9, Lidow'806 further discloses that the system may comprise an awakening module arranged to create a sensory wake-up signal for awakening the user in response to the stimulation signal (column 4, lines 36-42).

Regarding claim 15, Lidow'806 further discloses that the sleep characteristic may be indicative of a transition from REM to another sleep stage (column 5, lines 26-36).

Regarding claim 16, Lidow'806 further discloses that the stimulation signal may be provided only within a certain period after the transition from REM (column 5, lines 26-36).

Regarding claim 17, Lidow'806 further discloses that the sleep characteristic may be indicative of whether the user is in REM sleep (column 2, lines 42-48).

Regarding claim 19, Lidow'806 further discloses that the system may comprise a user interface for setting a desired wake-up interval or an end point of an interval (column 3, lines 11-16; column 4, lines 36-56).

Regarding claim 35, Lidow'806 discloses a system for awakening a user comprising at least one sensor responsive to a physiological manifestation that indicates a characteristic of sleep, where the sensor provides a sleep characterizing signal (elements 50-54); a transmitter responsive to the signal for providing the signal to the system's mobile terminal (column 2, line 14; elements 15 and 16); a receiver in the mobile terminal for receiving the signal (column 4, lines 32-34); and a signal processing module at the mobile terminal for processing the signal (element 60). The signal processing module is arranged to provide, at least partly in response to the signal, a stimulation signal indicative that the user should be stimulated towards the awake state

(figure 1). Lidow'806 does not disclose the terminal being usable by the patient while in the awake state.

Geva'098 teaches a mobile system that may be used to monitor a patient's sleep stages (paragraph [0152]) that may be incorporated in a device that can be used for communication when not monitoring (paragraphs [0293]-[0294]), in order to increase the functionality of the system by providing additional potential usage of the device. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the system of Lidow'806 and incorporated it in a mobile device that may be used for communication by the user, as taught by Geva'098, in order to increase the mobility of the system and increase the functionality of the device by providing additional potential uses.

Regarding claim 36, Lidow'806 discloses a method of determining when to awaken a user comprising receiving a sleep descriptor signal indicative of at least one sleep characteristic of the user (column 4, lines 34-34); processing the sleep descriptor signal (column 5, lines 37-67); and providing, at least partly in response to the sleep descriptor signal, a stimulation signal (column 2, lines 6-10 and 26-29). Lidow'806 does not disclose implementing the method in a mobile terminal that can be used for communication when the user is awake.

Geva'098 discloses a method of monitoring a user's sleep signals in order to determine a sleep state (paragraph [0152]) where the method is implemented using a mobile terminal that can be used for communication when the user is awake (paragraphs [0293]-[0294]), in order to increase the functionality of the device by

Art Unit: 3735

providing additional potential uses. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the method of Lidow'806 and implemented it in a device that can be used for communication when the user is awake, as taught by Geva'098, in order to increase the functionality of the device by providing additional potential uses.

Regarding claim 39, Lidow'806 further discloses that the stimulation signal may be an audible signal (column 4, lines 36-42).

Regarding claim 41, Lidow'806 further discloses that the stimulation signal is provided at least partly on the basis of at least one criterion adjustable by the user (column 3, lines 11-16; column 4, lines 36-56).

Regarding claim 46, Lidow'806 further discloses the step of creating a sensory wake-up signal for waking up the user in response to the stimulation signal (column 4, lines 36-42).

Regarding claim 50, Lidow'806 further discloses that the sleep characteristic may be indicative of a transition from REM to another sleep stage (column 5, lines 26-36).

Regarding claim 51, Lidow'806 further discloses that the at least one sleep characteristic may be indicative of whether the user is in REM sleep (column 2, lines 42-48).

Regarding claim 52, Lidow'806 further discloses the step of setting a desired wake-up interval (column 3, lines 11-16; column 4, lines 36-56).

Art Unit: 3735

6. Claims 1, 7, 9-10, 14, 17-18, 36, 38, 43, 47, 53, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama'831 (US Patent 5101831) in view of Geva'098.

Regarding claim 1, Koyama'831 discloses a mobile terminal for determining when a user should be stimulated toward an awake state comprising a receiver for receiving a sleep descriptor signal indicative of at least one sleep characteristic of the user (element 11); and a signal processing module for processing the sleep descriptor signal (element 12; figure 2; column 3, lines 53-68). The signal processing module is arranged to provide, at least partly in response to the sleep descriptor signal, a stimulation signal (column 8, lines 11-23). Koyama'831 does not disclose the mobile terminal being also usable for communication by the user when in an awake state.

Geva'098 teaches a mobile system that may be used to monitor a patient's sleep stages (paragraph [0152]) that may be incorporated in a device that can be used for communication when not monitoring (paragraphs [0293]-[0294]), in order to increase the mobility of the system and increase its functionality by providing additional potential usage of the device. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the system of Koyama'831 and incorporated it in a mobile device that may be used for communication by the user, as taught by Geva'098, in order to increase the mobility of the system and increase the functionality of the device by providing additional potential uses.

Regarding claim 7, Koyama'831 further discloses a slumber indicator for indicating to at least one other person whether the user is awake, in a deep sleep, or a

Art Unit: 3735

shallow sleep, based at least partly on the at least one sleep characteristic (column 8 line 62 to column 9, line 2).

Regarding claim 9, Koyama'831 discloses that the module maybe arranged to create a sensory wake-up signal for waking up the user in response to the stimulation signal (column 8, lines 11-23).

Regarding claim 10, Koyama'831 further discloses that the system may be arranged for preventing the user from falling into a deep sleep and remaining in a shallow sleep (column 8, lines 46-61).

Regarding claim 14, Koyama'831 further discloses that the sensory wake-up signal may be graduated for gradually waking the user (column 8, lines 11-23).

Regarding claim 17, Koyama'831 further discloses that one sleep characteristic may be indicative of whether the user is in REM sleep (column 4, lines 47-52; column 6, lines 37-42 and 54-65)

Regarding claim 18, Koyama'831 further discloses that the stimulation signal may be provided only when REM sleep is indicated (column 8, lines 36-46).

Regarding claim 36, Koyama'831 discloses a method for determining when to awaken a user, comprising receiving a sleep descriptor signal indicative of at least one sleep characteristic of the user (column 3, lines 12-16); processing the sleep descriptor signal (column 3, lines 53-68); and providing, at least partly in response to the sleep descriptor signal, a stimulation signal (column 8, lines 11-23). Koyama'831 does not disclose the method being performed within a mobile terminal that can be used for communication by user when awake.

Geva'098 discloses a method of monitoring a user's sleep signals in order to determine a sleep state (paragraph [0152]) where the method is implemented using a mobile terminal that can be used for communication when the user is awake (paragraphs [0293]-[0294]), in order to increase the functionality of the device by providing additional potential uses. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the method of Koyama'831, and implemented it in a device that can be used for communication when the user is awake, as taught by Geva'098, in order to increase the functionality of the device by providing additional potential uses.

Regarding claim 38, Koyama'831 further discloses that the method comprises determining on at least two instants in time whether the user is in REM or NREM sleep on the basis of the sleep descriptor signal, storing determination information regarding an outcome of the determination, detecting a transition from REM to NREM based upon the determination, and providing the stimulation signal as a response to the detection (column 8, lines 26+).

Regarding claim 43, Koyama'831 further discloses comprising the step of indicating to at least one other person whether the user is awake or in a deep or shallow sleep, based at least partly on the at least one sleep characteristic (column 8 line 62 to column 9, line 2).

Regarding claim 47, Koyama'831 further discloses preventing the user from falling into a deep sleep and remaining in a shallow sleep (column 8, lines 46-61).

Regarding claim 53, Geva'098 further teaches using a computer-readable medium encoded with a software data structure to perform the method of analyzing the user's sleep patterns (paragraphs [0023]-[0025], [0034]) in order to enable successful performance of the method. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the method of Koyama'831 and used a computer-readable medium encoded with a software data structure to perform the method, as taught by Geva'098, in order to enable successful performance of the method.

Regarding claim 55, Koyama'831 further discloses determining on at least two instants in time whether the user is in REM or NREM sleep on the basis of the sleep descriptor signal, storing determination information regarding an outcome of the determination, detecting a transition from REM to NREM based upon the determination, and providing the stimulation signal as a response to the detection (column 8, lines 26+).

7. Claims 3 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lidow'806 in view of Geva'098, as applied to claims 1-2, 4-5, 9, 15-17, 19, 35-36, 39, 41, 46, and 50-52 above, and further in view of Mollicone'476 (US Patent Application Publication 2003/0095476).

Regarding claim 3, Lidow'806 in view of Geva'098 discloses all the elements of the current invention, as described above, except for the stimulation signal being a radio signal for activating a stimulating unit.

Mollicone'476 teaches a system for monitoring and awakening a sleeping user where the stimulation signal may be a radio signal for activating a stimulating unit (paragraph [0050]), so that the user has more options as to what unit is used for stimulation. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the system of Lidow'806 in view of Geva'098 and had the stimulation signal be a radio signal for activating a stimulating unit, as taught by Mollicone'476, so that the user has more options as to what unit is used for stimulation.

Regarding claim 40, Lidow'806 in view of Geva'098 discloses all the elements of the current invention, as described above, except for the stimulation signal being a radio signal for activating a stimulating unit.

Mollicone'476 teaches a method of monitoring and awakening a sleeping user where the stimulation signal may be a radio signal for activating a stimulating unit (paragraph [0050]), so that the user has more options as to what unit is used for stimulation. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the method of Lidow'806 in view of Geva'098 and had the stimulation signal be a radio signal for activating a stimulating unit, as taught by Mollicone'476, so that the user has more options as to what unit is used for stimulation.

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lidow'806 in view of Geva'098, as applied to claims 1-2, 4-5, 9, 15-17, 19, 35-36, 39, 41, 46, and 50-52 above, and further in view of Lloyd'525 (US Patent 4617525).

Art Unit: 3735

Lidow'806 in view of Geva'098 discloses all the elements of the current invention, as described above, except for the system comprising a unit for monitoring snoring, where the stimulation signal is applied to stop the snoring.

Lloyd'525 teaches a system for monitoring a user's sleep states, comprising a unit for monitoring snoring where a stimulation signal is applied to stop the snoring (column 3, lines 13-35), in order to relieve potential apnea problems. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the system of Lidow'806 in view of Geva'098 and monitored snoring, applying the stimulation signal to stop the snoring, as taught by Lloyd'525, in order to relieve potential apnea problems.

Allowable Subject Matter

13 37 44 54?

9. Claims 6, 8, 12, 42, 44-45, 48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record fails to anticipate or make obvious the structure and method of claims 6 and 42, including, *inter-alia*, the device being configured to handle incoming calls based upon the sleep characteristic signal so that the user is not awoken from a deep sleep by a phone call.

The prior art of record fails to anticipate or make obvious the structure and method of claims 8 and 45, including, *inter-alia*, providing a radio signal in response to

Art Unit: 3735

the stimulation signal and using the radio signal to convey audio from the call to the user when awake.

The prior art of record fails to anticipate or make obvious the structure and method of claims 12 and 48, including, *inter-alia*, computing a ratio of deep sleep to light sleep and stimulating the user if the ratio falls below a threshold in order to prevent the user from sleeping too much.

The prior art of record fails to anticipate or make obvious the structure and method of claims 13, and 49, including, *inter-alia*, forming a sleep-wake history of the user and using the history to recommend when the user should sleep.

The prior art of record fails to anticipate or make obvious the method of claims 37 and 54, including, *inter-alia*, transmitting a polling signal before receiving the sleep descriptor signal.

The prior art of record fails to anticipate or make obvious the method of claim 44, including, *inter-alia*, predicting, to an outside observer, when the user will reach a suitable time for being awakened.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 6945935 to Sasse, which discloses a similar system.

US Patent Application Publication 2002/0019584 to Schulze, which discloses a similar system.

Art Unit: 3735

US Patent Application Publication 2003/0032866 to Winter, which discloses a similar system.

US Patent 5999846 to Pardey, which discloses a similar system.

US Patent 6497658 to Roizen, which discloses a similar system.

US Patent Application Publication 2005/0043652 to Lovett, which discloses a similar system.

US Patent Application Publication 2006/0020178 to Sotos, which discloses a similar system.

US Patent Application Publication 2002/0002326 to Causey, III, which discloses a similar system.

US Patent Application Publication 2005/0101841 to Kaylor, which discloses a similar system.

US Patent Application Publication 2005/0080349 to Okada, which discloses a similar system.

US Patent 6888779 to Mollicone, which discloses a similar system.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karen E. Toth whose telephone number is 571-272-6824. The examiner can normally be reached on Monday through Friday.

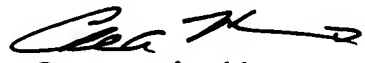
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor, II can be reached on 571-272-4730. The fax phone

Art Unit: 3735

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ket


Charles A. Marmor II
SPE, Art Unit 3735